


PATENT

UNITED STATES PATENT AND TRADEMARK OFFICE

In re application : GALLIANO BOSCOLO
 Application No. : 09/902,529
 Filed : July 10, 2001
 For : METHOD AND APPARATUS FOR PERFORATING A
 NON WOVEN SHEET
 Examiner :
 Attorney's Docket : BDL-353XX

Group Art Unit:

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By: 
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PRELIMINARY AMENDMENT

BOX PCT
 Commissioner for Patents
 Washington, D.C. 20231

Sir:

Kindly enter the following Preliminary Amendment in the above-identified application:

In the Claims:

Please amend the Claims to read as follows (a copy of the amended claims showing the additions and deletions appears at the end for the Examiner's convenience):

090655 0430

1. Method for perforating a non-woven sheet of fibers or filaments, according to which said sheet is brought into contact with a perforated cylinder, and at least one perforation is produced in the sheet by means of at least one perforating member that is driven simultaneously in translation and in rotation about its own axis, characterized, on one hand, in that there is previously fixed on the perforated cylinder at least one insert, including, at one end, a plane surface, and provided with a recess that emerges in said plane surface, and which has a sharp edge formed by the intersection of the inner surface of said recess with said plane surface and, on the other hand, in that a perforation in the non-woven sheet is obtained by cutting out a portion of the non-woven sheet by shearing of the fibers or filaments of the non-woven sheet, between the sharp edge of said insert and a perforating member driven simultaneously in translation and in rotation about its own axis.
2. Method according to claim 1, characterized in that, at the time of a perforating operation, said perforating member is driven simultaneously in rotation in a first direction of rotation and in translation in a first direction opposite from the perforated cylinder, and then is driven simultaneously in rotation in a second direction of rotation opposite from said first direction of rotation and in translation in the direction opposite from the first direction of translation.
3. Method according to claim 1, characterized in that each insert is removable.
4. Method according to claim 3, characterized in that each insert is fixed by screwing onto the perforated cylinder.

5. Method according to claim 2, characterized in that the direction of screwing of each insert corresponds to the first direction of rotation of a perforating member.
6. Method according to claim 1, characterized in that each insert comprises a plane flange.
7. Method according to claim 1, characterized in that the recess of an insert has a diameter that increases starting from the sharp edge.
8. Apparatus for perforating a non-woven sheet of the type comprising a perforated cylinder and at least one perforating member which is capable of being driven simultaneously in translation and in rotation about its own axis, characterized in that the perforated cylinder is equipped with at least one insert, including, at one end, a plane surface, and provided with a recess that emerges in said plane surface, and which has a sharp edge formed by the intersection of the inner surface of said recess with said plane surface, and in that the perforating tool is capable of cooperating with said sharp edge so as to cut by shearing the fibers or filaments of the non-woven sheet, between the sharp edge of said insert and said perforating member driven simultaneously in translation and in rotation about its own axis.
9. Apparatus according to claim 8, characterized in that said perforating member is designed to be driven in rotation in a first direction of rotation when it is moved in translation in a first direction opposite from the perforated cylinder, and to be driven in rotation in a second direction of rotation opposite from said first direction of rotation during its movement in translation in the direction opposite from the first direction of translation.

10. Apparatus according to claim 8, characterized in that each insert is removable.
11. Apparatus according to claim 10, characterized in that each insert is fixed by screwing onto the perforated cylinder.
12. Apparatus according to claim 9, characterized in that the direction of screwing of each insert corresponds to the first direction of rotation of a perforating member.
13. Apparatus according to claim 8, characterized in that each insert comprises a plane flange.
14. Apparatus according to claim 1, characterized in that the recess of an insert has a diameter that increases starting from the sharp edge.

Please add the following new claims 15-18:

15. Method according to claim 2, characterized in that each insert is removable.
16. Method according to claim 4, characterized in that the direction of screwing of each insert corresponds to the first direction of rotation of a perforating member.
17. Apparatus according to claim 9, characterized in that each insert is removable.
18. Apparatus according to claim 11, characterized in that the direction of screwing of each insert corresponds to the first direction of rotation of a perforating member.

REMARKS

This Preliminary Amendment puts the claims into proper form for examination. Note that all of the claims have been amended and new claims 15-18 have been added. Kindly calculate the filing fee based on the amended claims.

The Examiner is encouraged to telephone the undersigned attorney to discuss any matter which would expedite allowance of the present application.

Respectfully submitted,

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Enclosure

Red-lined claims for the Examiner's convenience:

1. Method for perforating a non-woven sheet—(N) of fibers or filaments, according to which said sheet—(N) is brought into contact with a perforated cylinder—(2), and at least one perforation is produced in the sheet—(N) by means of at least one perforating member—(9) that is driven simultaneously in translation and in rotation about its own axis, characterized, on one hand, in that there is previously fixed on the perforated cylinder—(2) at least one insert—(8), including, at one end, a plane surface—(S), and provided with a recess—(8b) that emerges in said plane surface—(S), and which has a sharp edge—(8g) formed by the intersection of the inner surface—(8f) of said recess—(8b) with said plane surface—(S) and, on the other hand, in that a perforation in the non-woven sheet—(N) is obtained by cutting out a portion—(P) of the non-woven sheet—(N) by shearing of the fibers or filaments of the non-woven sheet—(N), between the sharp edge—(8g) of said insert (8) and a perforating member—(9) driven simultaneously in translation and in rotation about its own axis.

2. Method according to claim 1, characterized in that, at the time of a perforating operation, said perforating member—(9) is driven simultaneously in rotation in a first direction of rotation—(R1) and in translation in a first direction—(H) opposite from the perforated cylinder—(2), and then is driven simultaneously in rotation in a second direction of rotation (R2) opposite from said first direction of rotation and in translation in the direction—(G) opposite from the first direction of translation—(H).

3. Method according to claim 1~~or~~2, characterized in that each insert~~(8)~~ is removable.
4. Method according to claim 3, characterized in that each insert~~(8)~~ is fixed by screwing onto the perforated cylinder~~(2)~~.
5. Method according to claims 2~~and~~4, characterized in that the direction of screwing of each insert~~(8)~~ corresponds to the first direction of rotation~~(R1)~~ of a perforating member~~(9)~~.
6. Method according to claim 1, characterized in that each insert~~(8)~~ comprises a plane flange~~(8e)~~.
7. Method according to claim 1, characterized in that the recess~~(8b)~~ of an insert~~(8)~~ has a diameter that increases starting from the sharp edge~~(8g)~~.
8. Apparatus for perforating a non-woven sheet~~(N)~~ of the type comprising a perforated cylinder~~(2)~~ and at least one perforating member~~(9)~~ which is capable of being driven simultaneously in translation and in rotation about its own axis, characterized in that the perforated cylinder~~(2)~~ is equipped with at least one insert~~(8)~~, including, at one end, a plane surface~~(S)~~, and provided with a recess~~(8b)~~ that emerges in said plane surface~~(S)~~, and which has a sharp edge~~(8g)~~ formed by the intersection of the inner surface~~(8f)~~ of said recess~~(8b)~~ with said plane surface~~(S)~~, and in that the perforating tool~~(9)~~ is capable of cooperating with said sharp edge~~(8g)~~ so as to cut by shearing the fibers or filaments of the non-woven sheet~~(N)~~, between the sharp edge~~(8g)~~ of said insert~~(8)~~ and said perforating member~~(9)~~ driven simultaneously in translation and in rotation about its own axis.

9. Apparatus according to claim 8, characterized in that said perforating member—(9) is designed to be driven in rotation in a first direction of rotation—(R1) when it is moved in translation in a first direction—(H) opposite from the perforated cylinder—(2), and to be driven in rotation in a second direction of rotation—(R2) opposite from said first direction of rotation during its movement in translation in the direction—(G) opposite from the first direction of translation—(H).
10. Apparatus according to claim 8—~~or 9~~, characterized in that each insert—(8) is removable.
11. Apparatus according to claim 10, characterized in that each insert—(8) is fixed by screwing onto the perforated cylinder—(2).
12. Apparatus according to claims 9—~~and 11~~, characterized in that the direction of screwing of each insert—(8) corresponds to the first direction of rotation—(R1) of a perforating member—(9).
13. Apparatus according to claim 8, characterized in that each insert—(8) comprises a plane flange—(8e).
14. Apparatus according to claim 1, characterized in that the recess—(8b) of an insert—(8) has a diameter that increases starting from the sharp edge—(8g).